FIG.1

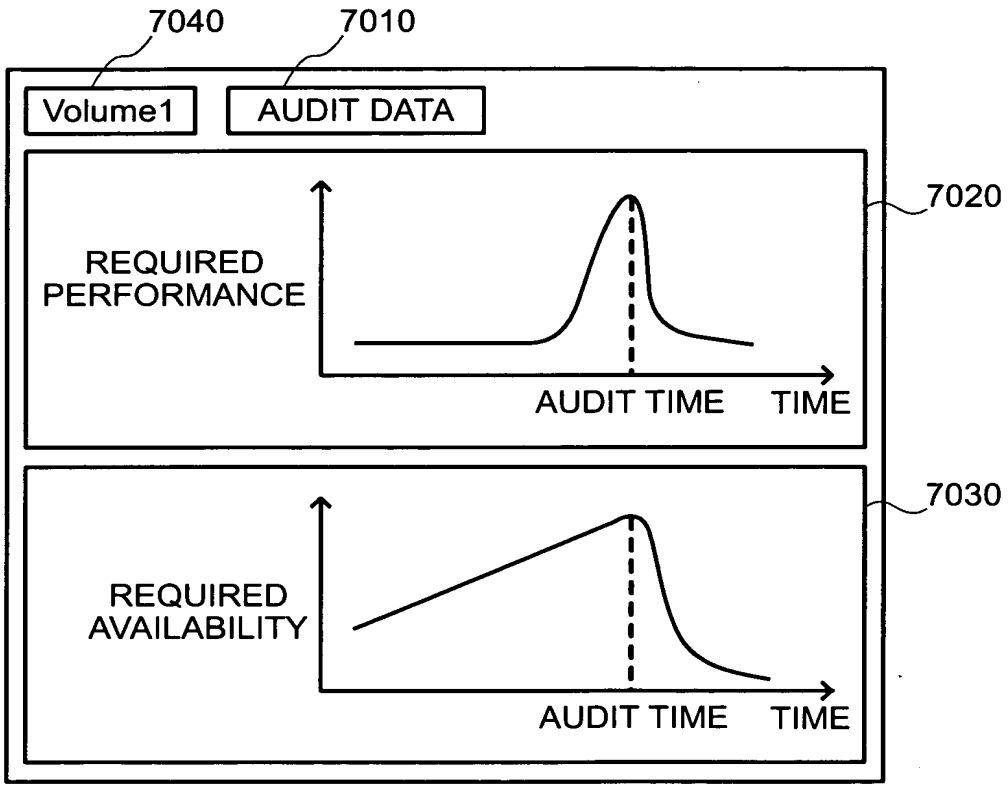

7040
7010
Volume1
AUDIT DATA
7020
REQUIRED PERFORMANCE
AUDIT TIME
TIME
7030
REQUIRED AVAILABILITY
AUDIT TIME
TIME

FIG.2

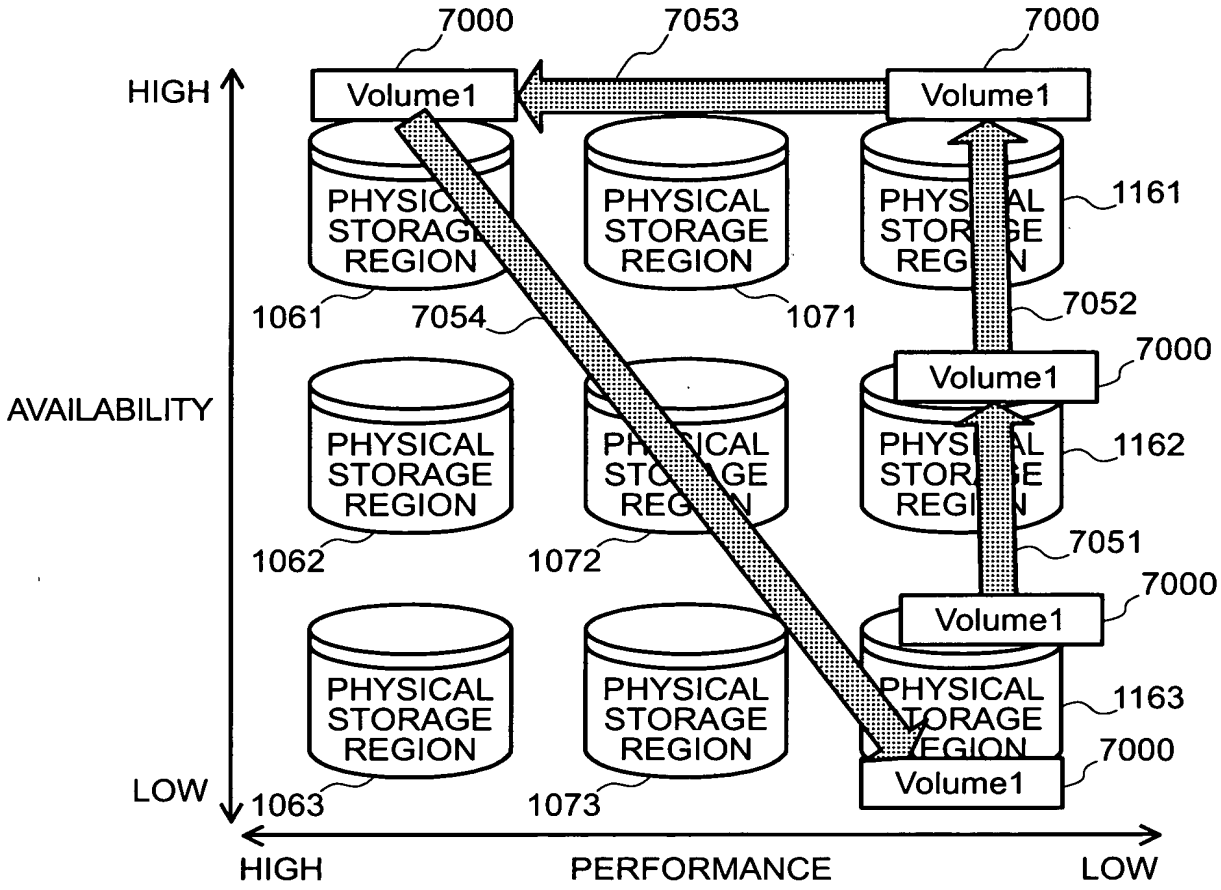

7000
7053
7000
HIGH
Volume1
Volume1
PHYSICAL STORAGE REGION
PHYSICAL STORAGE REGION
1161
1061
7054
1071
7052
7000
Volume1
AVAILABILITY
1162
1062
1072
7051
7000
Volume1
1163
1063
1073
7000
Volume1
LOW
HIGH
PERFORMANCE
LOW

FIG.3

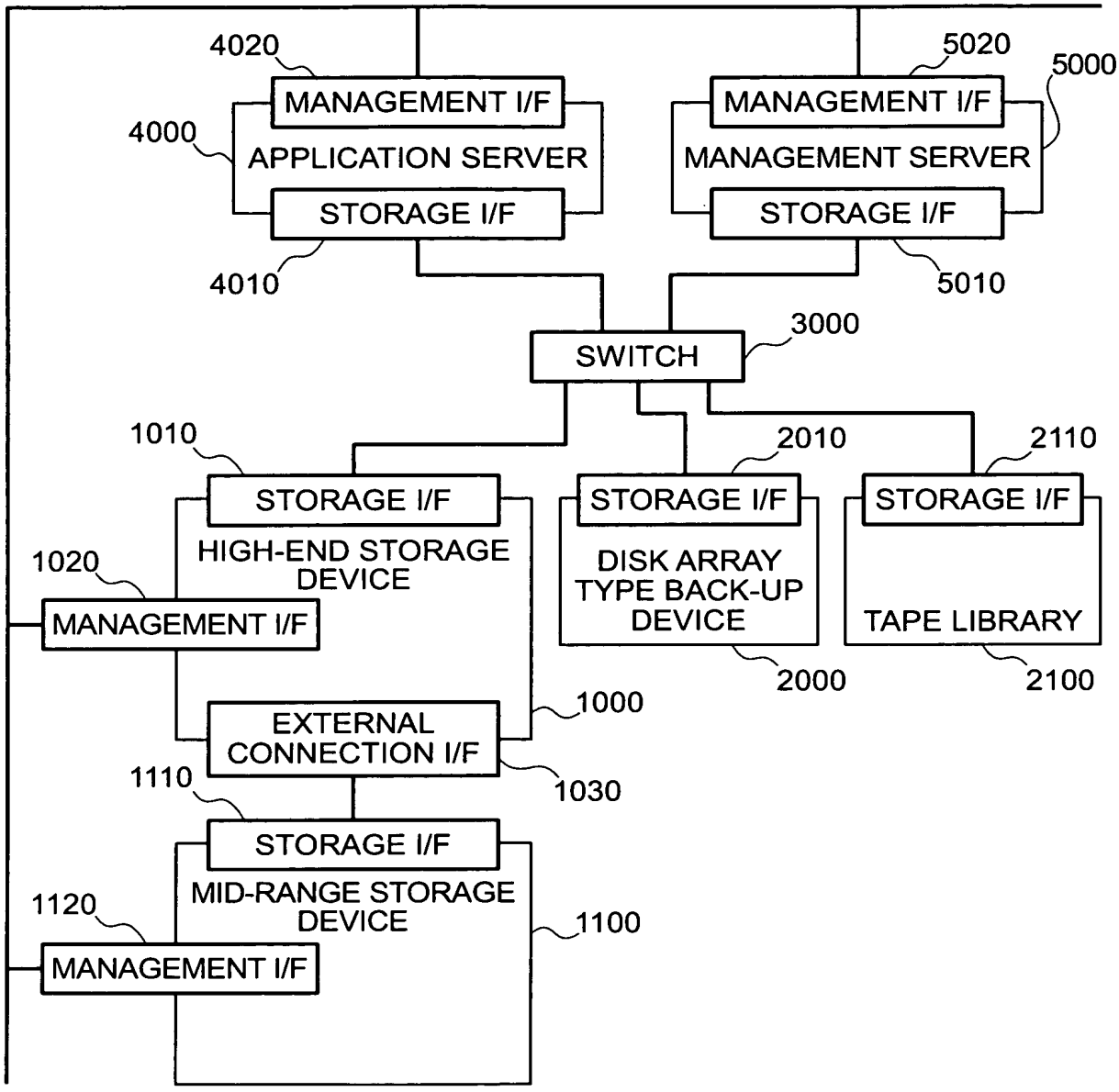

4020
MANAGEMENT I/F
4000
APPLICATION SERVER
STORAGE I/F
4010
5020
MANAGEMENT I/F
5000
MANAGEMENT SERVER
STORAGE I/F
5010
3000
SWITCH
1010
STORAGE I/F
HIGH-END STORAGE DEVICE
1020
MANAGEMENT I/F
2010
STORAGE I/F
DISK ARRAY TYPE BACK-UP DEVICE
2000
2110
STORAGE I/F
TAPE LIBRARY
2100
1000
EXTERNAL CONNECTION I/F
1030
1110
STORAGE I/F
MID-RANGE STORAGE DEVICE
1100
1120
MANAGEMENT I/F

FIG.4

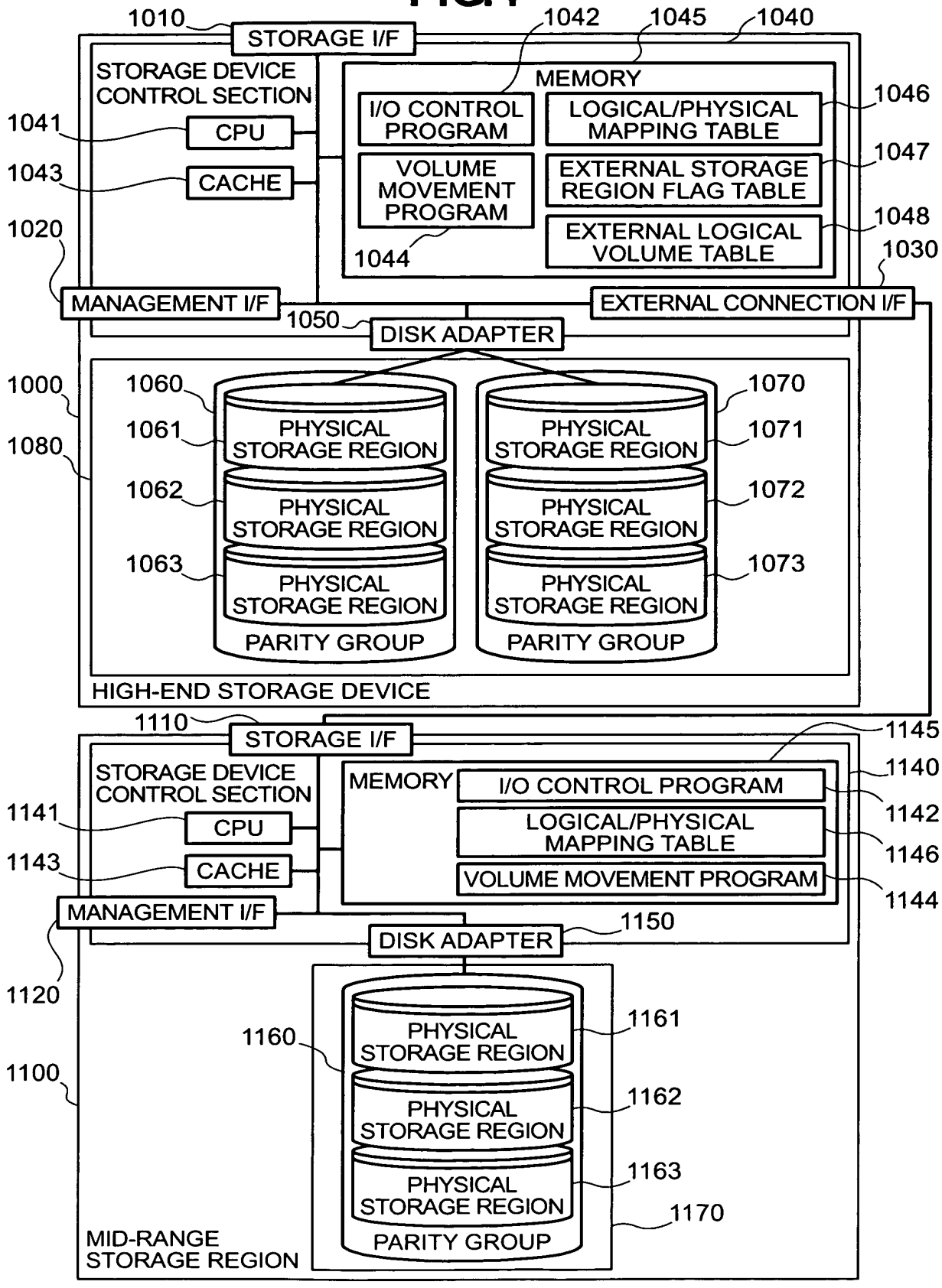

1010
STORAGE I/F
1042
1045
1040
STORAGE DEVICE CONTROL SECTION
MEMORY
1041
CPU
I/O CONTROL PROGRAM
LOGICAL/PHYSICAL MAPPING TABLE
1046
1043
CACHE
VOLUME MOVEMENT PROGRAM
EXTERNAL STORAGE REGION FLAG TABLE
1047
1044
EXTERNAL LOGICAL VOLUME TABLE
1048
1020
1030
MANAGEMENT I/F
EXTERNAL CONNECTION I/F
1050
DISK ADAPTER
1000
1060
1070
1061
PHYSICAL STORAGE REGION
1071
1080
1062
1072
1063
1073
PARITY GROUP
PARITY GROUP
HIGH-END STORAGE DEVICE
1110
STORAGE I/F
1145
STORAGE DEVICE CONTROL SECTION
MEMORY
1140
I/O CONTROL PROGRAM
1141
CPU
1142
LOGICAL/PHYSICAL MAPPING TABLE
1143
CACHE
1146
VOLUME MOVEMENT PROGRAM
1144
MANAGEMENT I/F
1150
DISK ADAPTER
1120
1160
1161
1100
1162
1163
1170
MID-RANGE STORAGE REGION

FIG.5A

1046

10461 LOGICAL VOLUME ID	10462 PARITY GROUP ID	10463 PHYSICAL STORAGE REGION ID	10464 ADDRESS IN PHYSICAL STORAGE REGION
Volume1	1060	1061	0~1023
Volume2	1060	1063	0~1023
Volume4	1070	1072	0~1023
Volume6	1070	1072	1024~2047

FIG.5B

1047

10471 LOGICAL VOLUME ID	10472 EXTERNAL STORAGE REGION FLAG
Volume1	0
Volume2	0
Volume3	1
Volume4	0
Volume5	1
Volume6	0

FIG.5C

1048

10481 LOGICAL VOLUME ID	10482 STORAGE DEVICE ID	10483 EXTERNAL LOGICAL VOLUME ID
Volume3	1100	Volume1
Volume5	1100	Volume2

FIG.5D

1146

11461 LOGICAL VOLUME ID	11462 PARITY GROUP ID	11463 PHYSICAL STORAGE REGION ID	11464 ADDRESS IN PHYSICAL STORAGE REGION
Volume1	1160	1161	0~1023
Volume2	1160	1163	0~1023

FIG.6

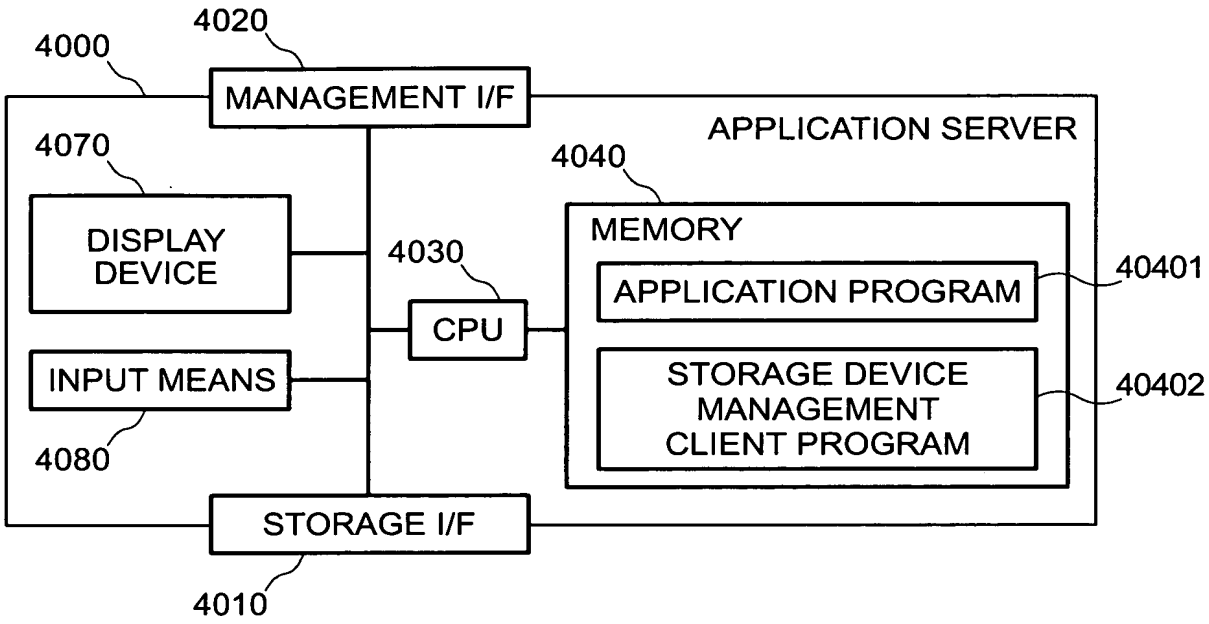

4020
4000
MANAGEMENT I/F
APPLICATION SERVER
4070
4040
DISPLAY DEVICE
MEMORY
4030
40401
APPLICATION PROGRAM
CPU
INPUT MEANS
STORAGE DEVICE MANAGEMENT CLIENT PROGRAM
40402
4080
STORAGE I/F
4010

FIG.7

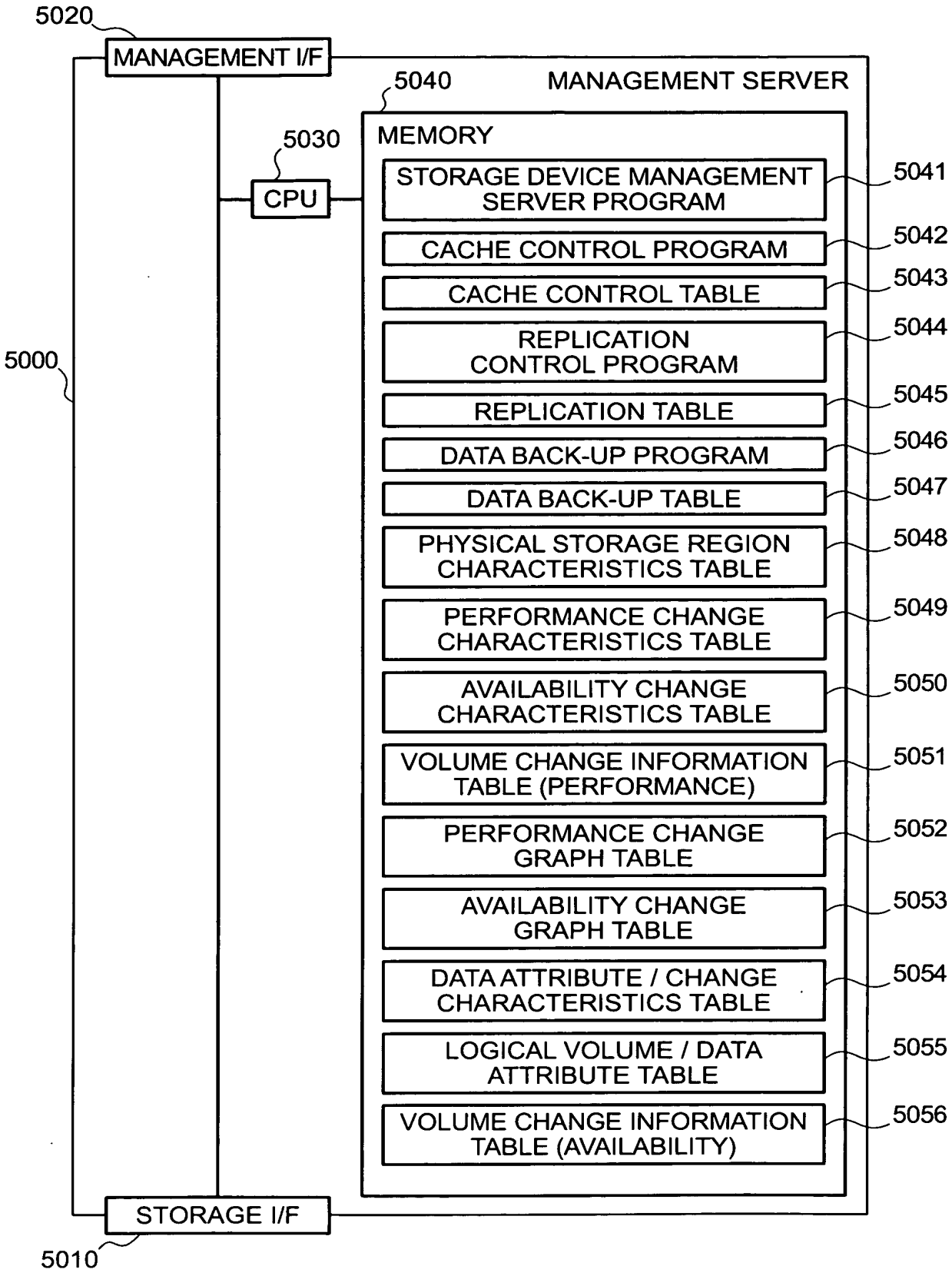

5020
MANAGEMENT I/F
5040
MANAGEMENT SERVER
MEMORY
5030
CPU
5000
STORAGE DEVICE MANAGEMENT SERVER PROGRAM
5041
CACHE CONTROL PROGRAM
5042
CACHE CONTROL TABLE
5043
REPLICATION CONTROL PROGRAM
5044
REPLICATION TABLE
5045
DATA BACK-UP PROGRAM
5046
DATA BACK-UP TABLE
5047
PHYSICAL STORAGE REGION CHARACTERISTICS TABLE
5048
PERFORMANCE CHANGE CHARACTERISTICS TABLE
5049
AVAILABILITY CHANGE CHARACTERISTICS TABLE
5050
VOLUME CHANGE INFORMATION TABLE (PERFORMANCE)
5051
PERFORMANCE CHANGE GRAPH TABLE
5052
AVAILABILITY CHANGE GRAPH TABLE
5053
DATA ATTRIBUTE / CHANGE CHARACTERISTICS TABLE
5054
LOGICAL VOLUME / DATA ATTRIBUTE TABLE
5055
VOLUME CHANGE INFORMATION TABLE (AVAILABILITY)
5056
STORAGE I/F
5010

FIG.8

5047

50471 STORAGE DEVICE ID	50472 PHYSICAL STORAGE REGION ID	50473 BACK-UP DEVICE ID	50474 BACK-UP DEVICE CHARACTERISTICS
1000	1061	2000	HIGH-SPEED
1000	1062	2000	HIGH-SPEED
1000	1063	2100	LOW-SPEED
1000	1071	2000	HIGH-SPEED
1000	1072	2000	HIGH-SPEED
1000	1073	2100	LOW-SPEED
1100	1161	2000	HIGH-SPEED
1100	1162	2000	HIGH-SPEED
1100	1163	2100	LOW-SPEED

FIG.9

5045

50451 STORAGE DEVICE ID	50452 PHYSICAL STORAGE REGION ID
1000	1061
1000	1071
1100	1161

FIG.10

5043

50431 STORAGE DEVICE ID	50432 PHYSICAL STORAGE REGION ID
1000	1061
1000	1062
1000	1163

FIG.11

5048

50481 STORAGE DEVICE ID	50482 PHYSICAL STORAGE REGION ID	50483 PERFORMANCE CHARACTERISTICS	50484 AVAILABILITY CHARACTERISTICS
1000	1061	HIGH	HIGH
1000	1062	HIGH	MEDIUM
1000	1063	HIGH	LOW
1000	1071	MEDIUM	HIGH
1000	1072	MEDIUM	MEDIUM
1000	1073	MEDIUM	LOW
1100	1161	LOW	HIGH
1100	1162	LOW	MEDIUM
1100	1163	LOW	LOW

FIG.12A

5049

50491 PERFORMANCE CHANGE CHARACTERISTICS ID	50492 ESTABLISHED DATE/TIME NAME	50493 ESTABLISHED DATE/TIME	50494 VOLUME CHANGE INFORMATION ID	50495 PERFORMANCE CHANGE GRAPH ID
1	STORAGE CONDITIONS CHANGE DATE	2008/7/15	1	1
2	—	—	2	2
3	AUDIT DATE	2004/6/30	3	3
4	AUDIT DATE	2004/9/30	3	3

FIG.12B

5051

50511 VOLUME MOVEMENT INFORMATION (PERFORMANCE) ID	50512 MOVEMENT NO.	50513 MOVEMENT DATE/TIME	50514 MOVEMENT DESTINATION PERFORMANCE CHARACTERISTICS
1	1	UPON CREATION	HIGH
	2	(ESTABLISHED DATE/TIME - CREATION DATE/TIME) / 3	MEDIUM
	3	(ESTABLISHED DATE/TIME - CREATION DATE/TIME) × 2/3	LOW
2	1	UPON CREATION	MEDIUM
3	1	UPON CREATION	LOW
	2	ESTABLISHED DATE/TIME - 3	HIGH
	3	ESTABLISHED DATE/TIME + 1	LOW

FIG.13

5052

50521 50522

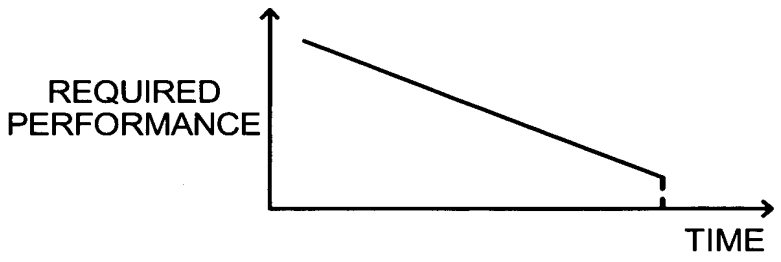
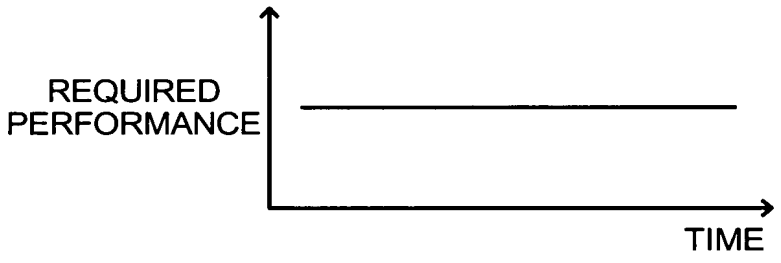
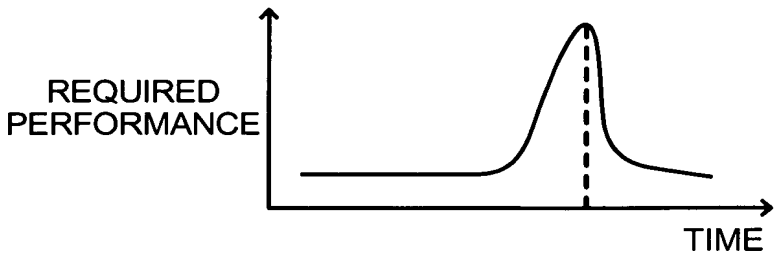
PERFORMANCE CHANGE GRAPH ID	PERFORMANCE CHANGE GRAPH
1	
2	
3	

FIG.14

(A)

5050

50501 AVAILABILITY CHANGE CHARACTERISTICS ID	50502 ESTABLISHED DATE NAME	50503 ESTABLISHED DATE/TIME	50504 VOLUME MOVEMENT INFORMATION ID	50505 AVAILABILITY CHANGE GRAPH ID
1	FILING CONDITIONS CHANGE DATE	2008/7/15	1	1
2	FILING CONDITIONS CHANGE DATE	2005/7/15	2	2
3	MONITORING DATE	2004/6/30	3	3
4	MONITORING DATE	2004/9/30	3	3

(B)

5051

50515 VOLUME MOVEMENT INFORMATION (AVAILABILITY) ID	50516 MOVEMENT NO.	50517 MOVEMENT DATE/TIME	50518 MOVEMENT DESTINATION AVAILABILITY CHARACTERISTICS
1	1	UPON CREATION	HIGH
	2	(ESTABLISHED DATE/TIME - CREATION DATE/TIME) / 3	MEDIUM
	3	(ESTABLISHED DATE/TIME - CREATION DATE/TIME) × 2/3	LOW
2	1	UPON CREATION	HIGH
	2	ESTABLISHED DATE/TIME	LOW
3	1	UPON CREATION	LOW
	2	(ESTABLISHED DATE/TIME - CREATION DATE/TIME) / 3	MEDIUM
	3	(ESTABLISHED DATE/TIME - CREATION DATE/TIME) × 2/3	HIGH
	4	ESTABLISHED DATE/TIME + 1	LOW

FIG.15

5053

50531 50532

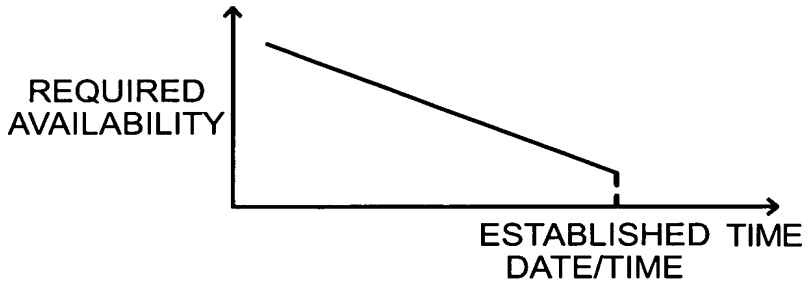
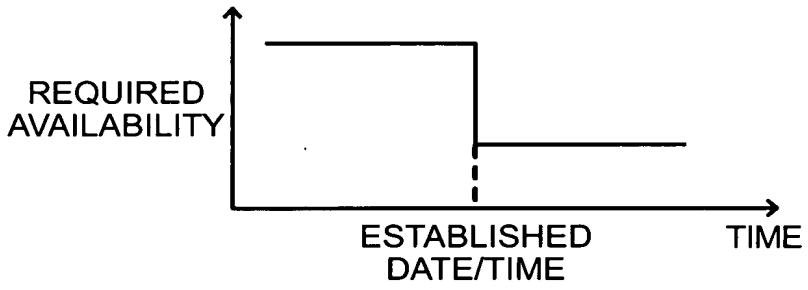
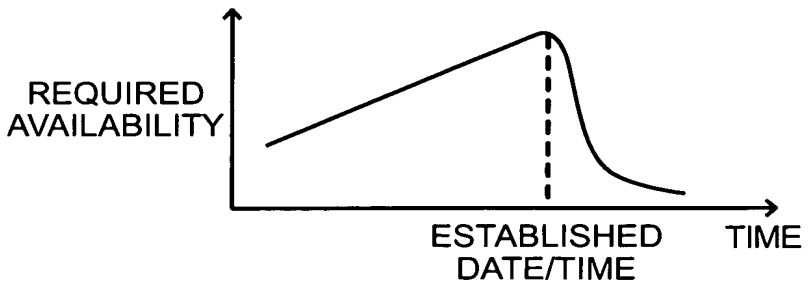
AVAILABILITY CHANGE GRAPH ID	AVAILABILITY CHANGE GRAPH
1	
2	
3	

FIG.16

5054

50541 DATA ATTRIBUTE NAME	50542 PERFORMANCE CHANGE CHARACTERISTICS ID	50543 AVAILABILITY CHANGE CHARACTERISTICS ID
AUDIT DATA WITH ESTABLISHED DATE/TIME 6/30	3	3
MAIL LOG WITH ESTABLISHED DATE/TIME 7/15	1	2
AUDIT DATA WITH ESTABLISHED DATE /TIME 9/30	3	3

FIG.17

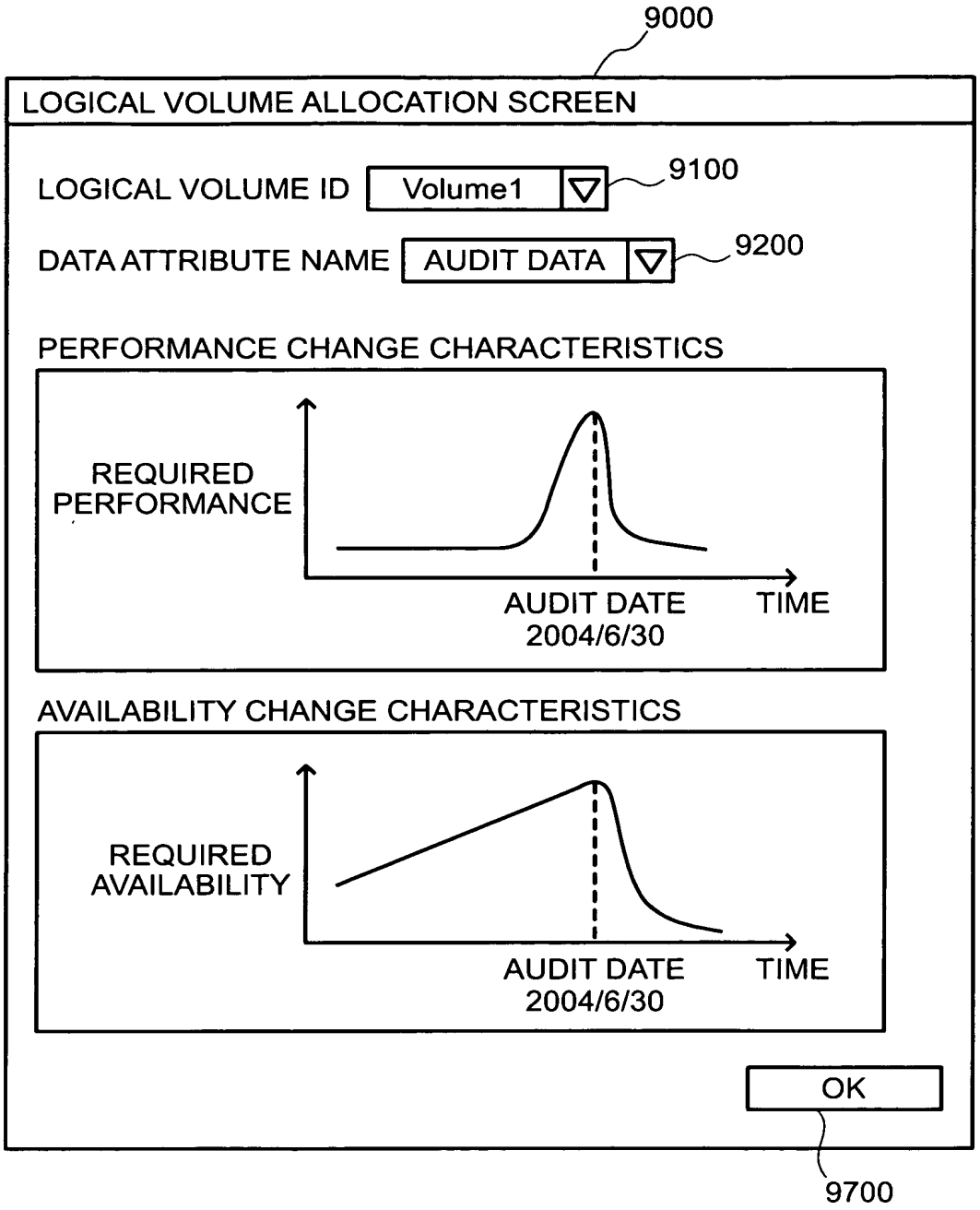

9000
LOGICAL VOLUME ALLOCATION SCREEN
LOGICAL VOLUME ID
Volume1
9100
DATA ATTRIBUTE NAME
AUDIT DATA
9200
PERFORMANCE CHANGE CHARACTERISTICS
REQUIRED PERFORMANCE
AUDIT DATE 2004/6/30
TIME
AVAILABILITY CHANGE CHARACTERISTICS
REQUIRED AVAILABILITY
AUDIT DATE 2004/6/30
TIME
OK
9700

FIG.18

5055

50551 LOGICAL VOLUME ID	50552 DATA ATTRIBUTE
Volume1	AUDIT DATA WITH ESTABLISHED DATE/TIME 6/30
Volume2	MAIL LOG WITH ESTABLISHED DATE/TIME 7/15

FIG.19

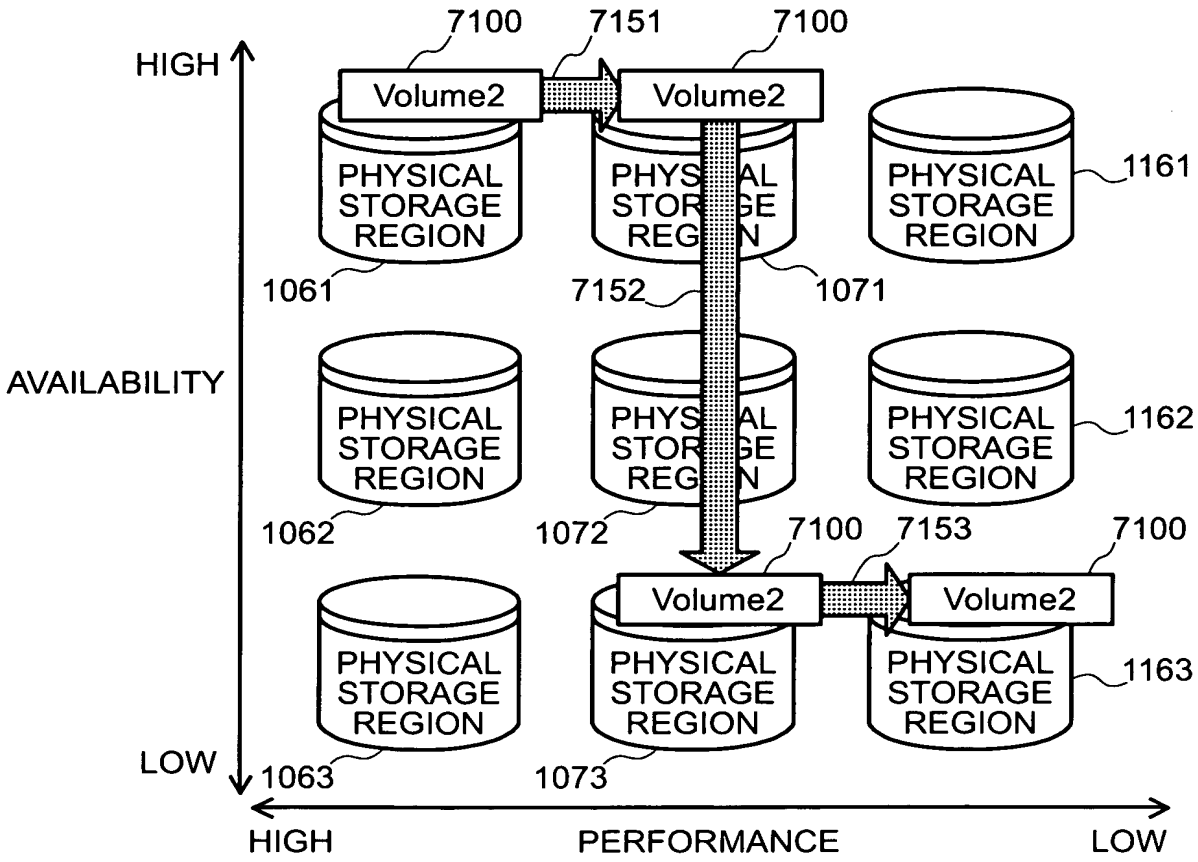


FIG.20

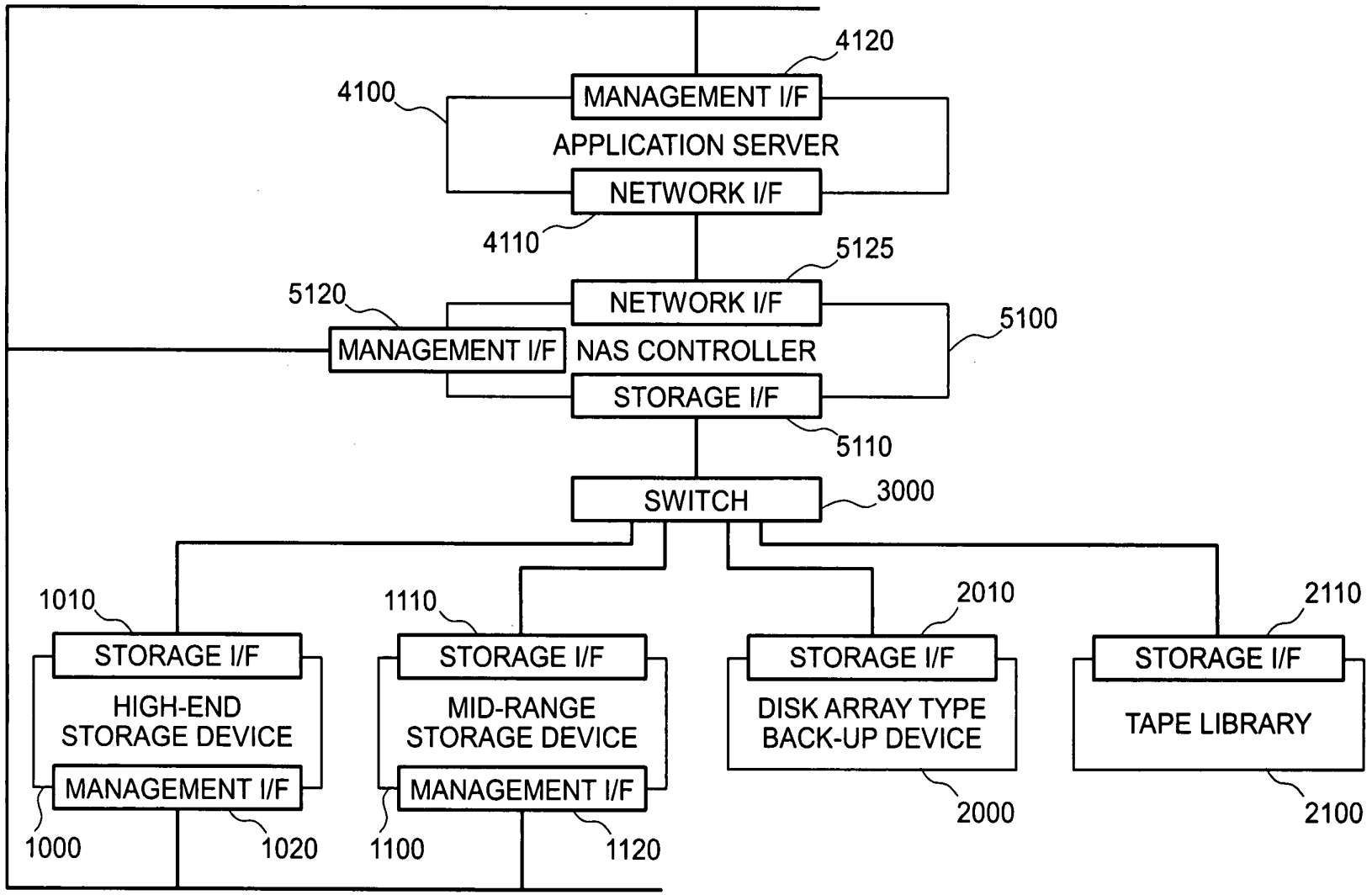

4120
4100
MANAGEMENT I/F
APPLICATION SERVER
NETWORK I/F
4110
5125
5120
NETWORK I/F
MANAGEMENT I/F
NAS CONTROLLER
5100
STORAGE I/F
5110
SWITCH
3000
1010
1110
2010
2110
STORAGE I/F
STORAGE I/F
STORAGE I/F
STORAGE I/F
HIGH-END
STORAGE DEVICE
MID-RANGE
STORAGE DEVICE
DISK ARRAY TYPE
BACK-UP DEVICE
TAPE LIBRARY
MANAGEMENT I/F
MANAGEMENT I/F
2000
2100
1000
1020
1100
1120

FIG.21

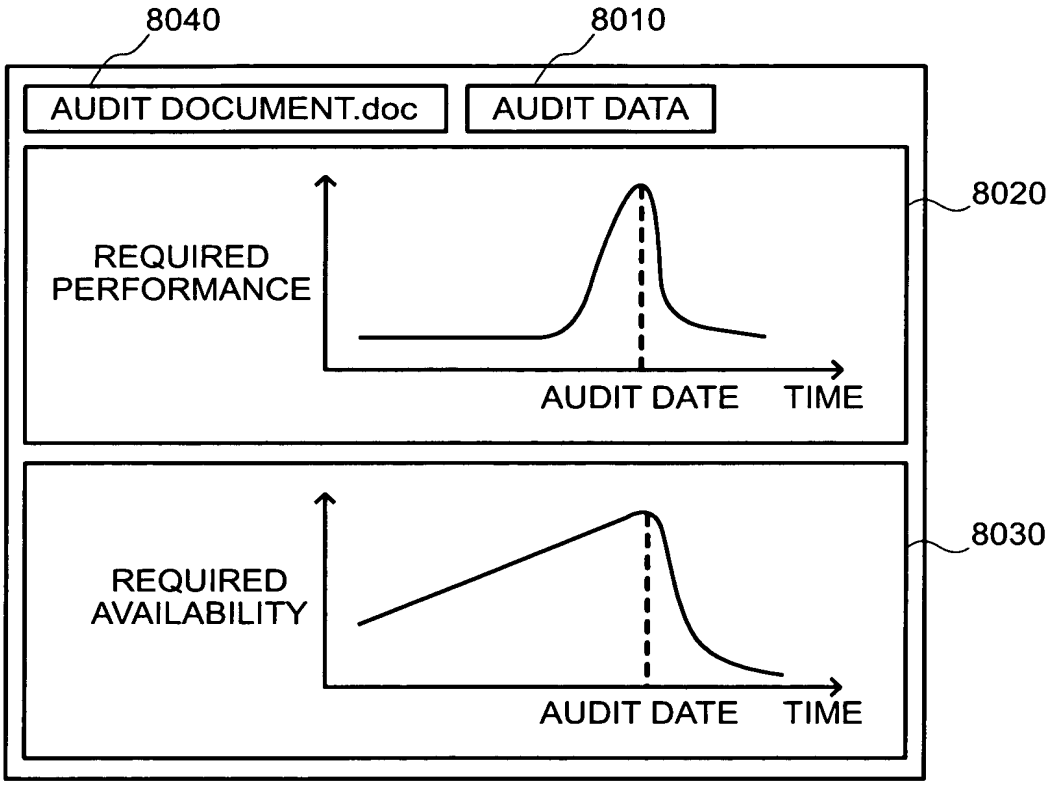

8040
8010
AUDIT DOCUMENT.doc
AUDIT DATA
8020
REQUIRED PERFORMANCE
AUDIT DATE
TIME
8030
REQUIRED AVAILABILITY
AUDIT DATE
TIME

FIG.22

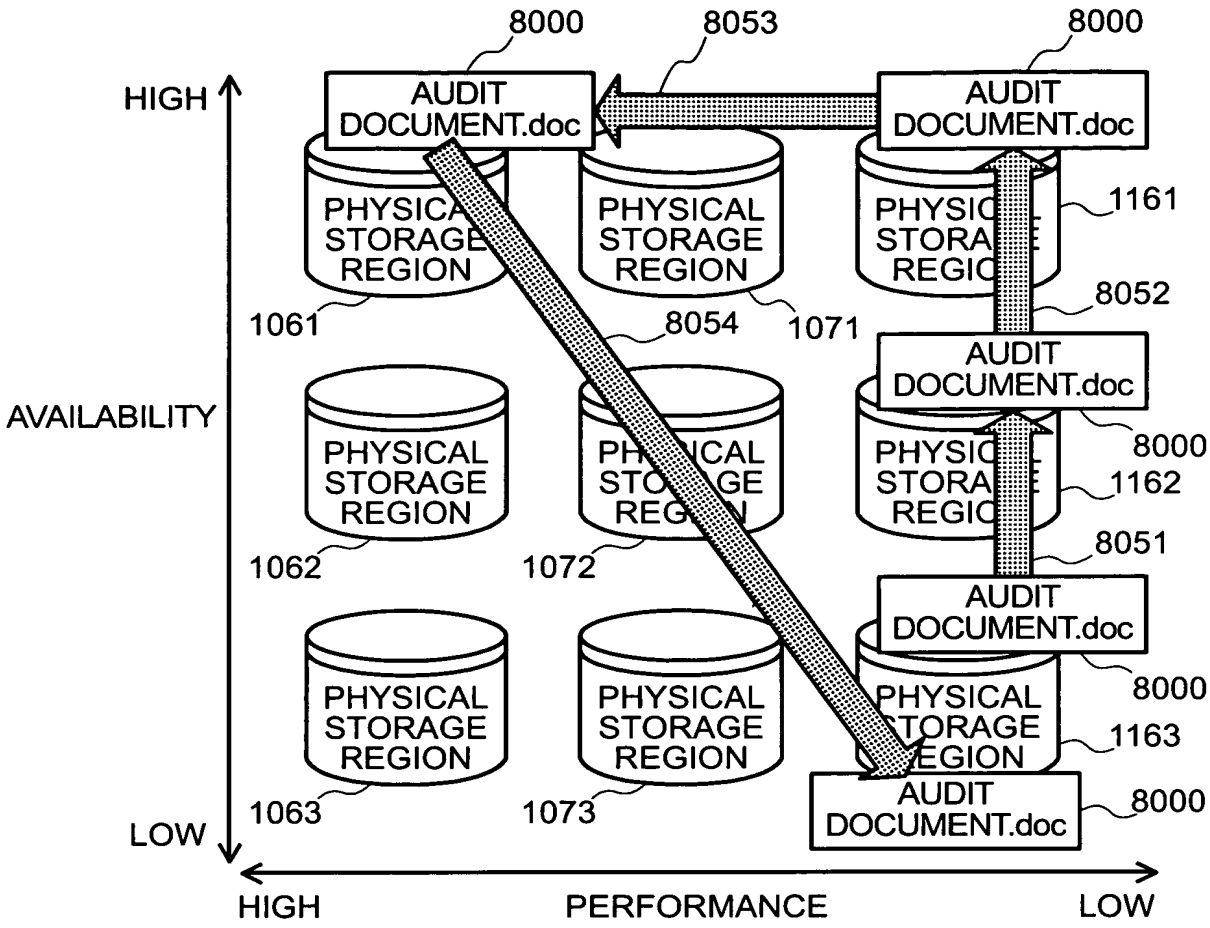


FIG.23

5156

51561 FILE NAME	51562 STORAGE DEVICE ID	51563 PHYSICAL STORAGE REGION ID	51564 ADDRESS IN PHYSICAL STORAGE REGION
AUDIT DOCUMENT.doc	1100	1163	0~1023
maillog.mbx	1000	1061	0~1023

FIG.24

5057

LOGICAL VOLUME	DATA TYPE	CREATION DATE	ESTABLISHED DATE	MOVEMENT DATE/TIME	PHYSICAL STORAGE REGION	
					PERFORMANCE	AVAILABILITY
1	AUDIT	2004/1/1	2004/6/30	2004/1/1	LOW	LOW
				2004/2/29	LOW	MEDIUM
				2004/4/30	LOW	HIGH
				2004/6/27	HIGH	HIGH
				2004/7/1	LOW	LOW
2	MAIL LOG	2003/12/31	2006/12/31	2003/12/31	HIGH	HIGH
				2004/12/31	MEDIUM	HIGH
				2005/12/31	LOW	LOW
...						